



MISSOURI DEPARTMENT OF NATURAL RESOURCES

Guide to Animal Feeding Operations

Fact Sheet

5/1999

Division of Environmental Quality
Water Pollution Control Program

Laws passed by the General Assembly to protect water quality in Missouri designated the Missouri Department of Natural Resources (DNR) as responsible for promulgation of rules. By establishing and enforcing standards and properly managing animal waste, we can protect our valuable water resources. Preventing contamination is the key to protecting water quality for all Missouri citizens. The following requirements regulate confinement animal feeding operations.

Classification of Animal Feeding Operations

The requirements are based on the number of animal units at each operating location. Table 1 illustrates the different animal species and animal unit range within the separate classifications.

Table 1. Animal Unit and Size Classification

1 Animal Unit =					
1.0	Beef feeder or slaughter animal	2.5	Swine weighing over 55 lbs.	30	Laying hens
0.5	Horse	15	Swine weighing less than 55 lbs.	60	Pullets
0.7	Dairy cow	10	Sheep	55	Turkeys
				100	Broiler chickens

Class IA 7,000 animal unit equivalents		Class IB 3,000 to 6,999 animal unit equivalents		Class IC 1,000 to 2,999 animal unit equivalents		Class II 300 to 999 animal unit equivalents	
7,000	Beef feeder or slaughter animal	3,000 to 6,999	Beef feeder or slaughter animal	1,000 to 2,999	Beef feeder or slaughter animal	300 to 999	Beef feeder or slaughter animal
3,500	Horse	1,500 to 3,499	Horse	500 to 1,499	Horse	150 to 499	Horse
4,900	Dairy cow	2,100 to 4,899	Dairy cow	700 to 2,099	Dairy cow	200 to 699	Dairy cow
17,500	Swine weighing over 55 lbs.	7,500 to 17,499	Swine weighing over 55 lbs.	2,500 to 7,499	Swine weighing over 55 lbs.	750 to 2,499	Swine weighing over 55 lbs.
105,000	Swine weighing under 55 lbs.	45,000 to 104,999	Swine weighing under 55 lbs.	15,000 to 44,999	Swine weighing under 55 lbs.	4,500 to 14,999	Swine weighing under 55 lbs.
70,000	Sheep	30,000 to 69,999	Sheep	10,000 to 29,999	Sheep	3,000 to 9,999	Sheep
210,000	Laying hens	90,000 to 209,999	Laying hens	30,000 to 89,999	Laying hens	9,000 to 29,999	Laying hens
420,000	Pullets	180,000 to 419,999	Pullets	60,000 to 179,999	Pullets	18,000 to 59,999	Pullets
385,000	Turkeys	165,000 to 384,999	Turkeys	55,000 to 164,999	Turkeys	16,500 to 54,999	Turkeys
700,000	Broiler chickens	300,000 to 699,999	Broiler chickens	100,000 to 299,999	Broiler chickens	30,000 to 99,999	Broiler chickens

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Buffer Distances

There are minimum buffer distances required between the nearest confinement building or lagoon and any public building or occupied residence. These distances are for design and construction of new confinement animal feeding operations (see Table 2). The distances are determined by the number of animal units that will occupy the operation. The owner or operator is required to give notice to the adjoining property owners located within 1.5 times the listed buffer distance, the county governing body and DNR when planning construction of a new class 1A, class 1B or class 1C confinement animal feeding operation.

Table 2. Permit Requirements and Buffer Distances

Class I

Permits are required for all Class I Confined Animal Feeding Operations.

Class 1A - 3,000 feet buffer distance -

Class 1A - wet handling operations that have 50 percent or more moisture in the waste must obtain a site specific permit.

Class 1A - dry handling operations that have less than 50 percent moisture in the waste must obtain a general permit. *

Class 1B - 2,000 feet buffer distance - Class 1B wet or dry handling operations must obtain a general permit. *

Class 1C - 1,000 feet buffer distance - Class 1C wet or dry handling operations must obtain a general permit. *

Class II - Buffer distance is not required unless part of a letter of approval or permit requirement

Class II - operations are encouraged to obtain a voluntary Letter of Approval for their animal waste management plans.

* Site-specific permit may be required on case-by-case basis.

Critical Watershed Requirements

Critical Watershed Requirements apply only to Class IA operations. Class IA concentrated, animal feeding operations must submit a spill prevention plan for Department of Natural Resources approval. New and expanding facilities shall submit this plan with the permit application, and existing facilities were required to submit a plan by February 28, 1997.

These requirements apply in watersheds for public drinking water lakes (L1 lakes defined in 10 CSR 20-7.031); watersheds located upstream away from the dam from all drinking water intake structures on lakes, including the watershed of Table Rock Lake; and areas in the watershed within five miles upstream of any stream or river drinking water intake structure, other than those intake structures on the Missouri and Mississippi rivers. Class IA concentrated animal feeding operations, both new and those facilities that wish to expand to Class IA size, are prohibited in watersheds of the Current (headwaters to Northern Ripley County Line), Eleven Point (headwaters to Hwy. 142) and Jacks Fork (headwaters to mouth) rivers.

Location of Wells and Other Separation Distance Requirements

The minimum required separation distances for handling and storage of animal waste are for livestock operations that require a permit or request a letter of approval. The separation distances apply to both animal waste storage structures and to areas where animal waste is land applied. When planning changes or expanding an animal feeding operation, producers must consider the location of wells in relation to animal production, land application, waste storage, composter site or other potential water contamination sources. In addition, producers who wish to obtain federal cost-share dollars or state loan dollars for construction of any animal waste system must obtain a Letter of Approval (LOA) or Permit from the Department of Natural Resources (DNR) regardless of the animal production size. Special circumstances may dictate that separation distances be greater than the requirement, and these are evaluated on a case-by-case basis.

Minimum separation distances that may affect your operation have been established in rules from DNR's Division of Geology and Land Survey and from the Missouri Clean Water Commission. These rules are found in the Division of Geology and Land Survey Missouri Well Construction Rules (10CSR23-3.010) and the Clean Water Commission Design Rules (10CSR20-8.020). The Clean Water Commission rules are administered by DNR's Water Pollution Control Program. There were no Missouri well installation rules before September 1987. The well construction rules adopted after that date are summarized in Table 3. Wells constructed prior to the Missouri Well Construction Rules but after adoption of the Clean Water Commission rules for minimum separation distances are reviewed and approved on a case-by-case basis and may involve water sample testing or dye tracing for indications of contamination. Planned new operations are not approved if existing wells have less than the minimum required separation distances. Existing operations with wells installed after rules' adoption that do not meet the minimum separation distance requirements will be resolved by either setting modification requirements or requiring a new well to be drilled. The new amendments to the Missouri Well Construction Rules became effective June 30, 1996.

Table 3. Missouri Well Construction Rules-Well Setback Distances Since 1986 in Accordance with 10 CSR 23-3.010

Requirements for	new wells	older wells	
Distances (in feet) from a water well to	Regulation effective June 30, 1996	Regulation effective Jan. 1, 1994	Regulation effective Nov. 1, 1987
Storage area for commercial fertilizer or chemicals	300	300	150
Cesspool	100	100	100
Below-grade manure storage area	300	100	100
Animal or poultry yard, building or privy	100	100	75
Other contaminants that may drain into the soil	100	100	75
Lagoon	300	300	Case-by-Case
Earthen, concrete or other manure storage structure or lagoons	300	1/	1/
Land application areas for animal waste	300	300	2/
Uncovered animal composters	300	1/	1/
Enclosed composters with concrete floor and roof	100	1/	1/
Dry litter storage in poultry building during normal operations.	100	1/	1/
Single family lagoon	100	1/	1/

1/ Not covered by Missouri Well Construction Rules, but Clean Water Commission rules recommend 300 feet and require a minimum of 100 feet.

2/ Not covered by Missouri Well Construction Rules, but April 15, 1989, Clean Water Commission rules require a minimum of 300 feet.

For permits or letters of approval, a geological evaluation of the proposed confinement animal feeding operation site is required, except for dry litter systems, and may affect overall layout and minimum separation distances from a well or water supply structure. Specific information on wells and well construction requirements can be obtained by contacting the department's Division of Geology and Land Survey - wellhead protection section, PO Box 250, Rolla, MO 65402 or call (573) 368-2165.

Land Application Areas

Animal waste should be land applied as a plant nutrient application and should always be managed so that runoff does not occur. The application separation distances are:

- 300 feet from losing streams, sinkholes, caves, wells, abandoned wells, water supply structures or impoundments and any other connection between surface and groundwater;
- 100 feet from permanent flowing streams;
- 50 feet from intermittent flowing streams;
- 50 feet from property lines;
- 100 feet from a privately owned impoundment not used as a water supply;
- 150 feet from dwellings or public use areas if applied with spray irrigation systems;
- 50 feet for application by tank wagon or solid spreader from dwellings or public use areas.

Areas with flood frequencies greater than once in 10 years should not be the only land available for land application of stored animal nutrients. Record keeping is required for land application and may include application dates, location, rainfall received, nitrogen loading rate, crop management, field conditions, percent slope and buffer zones from streams and other water supply structures. Application rates should be based on the actual nitrogen content being land applied with soil analysis, predicted plant uptake and crop removal, thus assuring efficient use of the resource and preventing over application.

Other Animal Feeding Operation Issues

Animal waste storage structures must be located above the 25-year flood level. The U. S. Army Corps of Engineers, US. Department of Agriculture, Natural Resource Conservation Service and the Federal Emergency Management Agency can supply data on 25-year flood levels. Additionally, the bottom of the storage structure must be located at least four feet above the water table.

1. **Nonpoint sources:** Permits or letters of approval are not required for the following animal feeding operations:
 - a. Animal feeding operations that are less than 300 animal units in size (unclassified).
 - b. Animal pasture operations, bare feeding areas within a pasture or barn lot feeding areas when the cattle have free access to pasture.
 - c. Class II operations that do not discharge.
2. **Voluntary Letters of Approval:** Operations that do not require a permit may apply for a letter of approval or a permit on a voluntary basis. Operations smaller than Class II may apply for a letter of approval based on best management practices approved by the department. This will allow approval of innovative practices that may be more appropriate for these smaller operations than conventional storage and land application systems.

3. **Case-by-case permits:** Operations that are otherwise exempted from permitting may be required to obtain a permit on a case-by-case basis if the department determines that the animal feeding operation has polluted waters of the state.

Permit Requirements for Concentrated Animal Feeding Operations

1. DNR Water Pollution Control Program permit requirements for concentrated animal feeding operations (CAFO) are covered in the following rules:
 - a. 10 CSR 20-6.200. Land disturbance permits are required for storm water discharges from Class I CAFOs if the area to be disturbed will total five acres or more for the entire project. This permit must be obtained prior to any land clearing or grading. The land disturbance permit requires installation of best management practices to limit soil erosion and sediment movement during construction activities. A general permit is available.
 - b. 10 CSR 20-6.300. Construction and operating permits are required for Class I CAFO animal confinement areas and waste management features. Permits are also required for any Class II CAFO that will discharge through a man-made conveyance. Prior to construction, both the construction permit and the land disturbance permit must be obtained. The operating permit must be obtained prior to placing animals in the confinement areas. Proposed permit actions are required to follow the public participation procedures outlined in 10 CSR 20-6.020 and 10CSR 20-6.300.
 - c. Additional requirements for Class I CAFOs are contained in new state legislation (HB1207) under Section 261.105 and 640.700-640.755 of RSMo, supp, 1996. This law became effective June 25, 1996. Rules were issued March 31, 1999 under 10 CSR 20-6.300.
 - d. Refer to other permit exemptions being issued under 10 CSR 20-6.300.
 - e. Permit requirements are being drafted under 10 CSR 20-6.300 for certain brokers and contract haulers that buy, sell or land apply manure that is not covered by the producers permit.
2. Design and engineering requirements are found in 10 CSR, Division 20, Chapter 8, Design Guides. Contact the Water Pollution Control Program for additional guidance documents.
3. You may also need a Section 404, Clean Water Act, permit from the U.S. Army Corps of Engineers if you are filling or discharging material into waters of the United States, such as building a dam to impound water. If you are filling or discharging into a streambed where flows have been sufficient to produce a physical impression on its banks (even if the channel is dry at the time), then you should contact the Corps office that has jurisdiction in your watershed for more information. The deposit of fill material in wetlands is also regulated and requires a permit under Section 404.
4. For more information:
 - a) Engineering and design questions or permit questions: Missouri Department of Natural Resources
Water Pollution Control Program
P.O. Box 176; Jefferson City, MO 65102
(573) 751-1300
(<http://www.dnr.state.mo.us/deq/wpcp/homewpcp.htm>) Program Home Page
 - b) Questions on drilling a well: Missouri Department of Natural Resources
Division of Geology and Land Survey
Wellhead Protection Section
P.O. Box 250; Rolla, MO 65402
(573) 368-2165.

c) General questions: Missouri Department of Natural Resources
Technical Assistance Program
P.O. Box 176; Jefferson City, MO 65102
(573) 526-6627 or 1-800-361-4827
[\(<http://www.dnr.state.mo.us/deq/tap/hometap.htm>\) Program Home Page](http://www.dnr.state.mo.us/deq/tap/hometap.htm)

d) Odor regulations: Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176; Jefferson City, MO 65102
(573)751-4817 or 1-800-361-4827
[\(<http://www.dnr.state.mo.us/deq/apcp/homeapcp.htm>\) Program Home Page](http://www.dnr.state.mo.us/deq/apcp/homeapcp.htm)